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Human right to safe drinking water and sanitation

Note by the Secretary-General

The Secretary-General has the honour to transmit to the General Assembly the report of the Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque, in accordance with Human Rights Council resolution 16/2.

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Report of the Special Rapporteur on the human right to safe drinking water and sanitation

Summary

The Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque, submits the present report to the General Assembly in accordance with Human Rights Council resolution 16/2. She considers it imperative to introduce the human rights framework and the practical guidance it provides into policies and practice for managing wastewater and controlling pollution.

The present report starts with an explanation of the concept of wastewater and its link to human rights, an outline of the impact of water pollution on the realization of human rights, and an exploration of the interface between access to sanitation and wastewater management. It describes how households, agriculture and industry contribute to water pollution and stresses the value of integrating human rights into wastewater management and water pollution control in order to address challenges in the legislative, regulatory and institutional frameworks. The report also discusses appropriate technology choices, financing and pricing, accountability and transparency and, finally, informing the post-2015 development agenda.

I. Introduction

1. The present report is submitted to the General Assembly by the Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque, in accordance with Human Rights Council resolution 16/2. The Special Rapporteur devotes the report to the issue of managing wastewater and curbing water pollution.

2. In the country missions conducted by the Special Rapporteur, the impact of water pollution is a recurring theme, involving untreated sewage and faecal sludge from septic tanks leaking into ground and surface water, through the content of pits dumped into the environment or overflowing networks, through small businesses and large industries discharging contaminated water, through agricultural run-offs contaminated with pesticides and fertilizers, as well as uncontrolled urban run-off. Moreover, a range of cases detailing the impacts of extractive industries, in particular on water quality, have been brought to her attention. The lack of adequate wastewater management and pollution control can have significant impact on public health and the environment. The Special Rapporteur finds that disadvantaged communities are the worst affected, with negative impacts on the lives, livelihoods, health and the realization of the human rights of their members.

3. The present report seeks to consider those issues in a comprehensive manner by introducing the human rights framework into broader considerations of wastewater management and ensuring water quality. Despite declared intentions to integrate wastewater management into overall water management frameworks, water management has been given priority by policymakers, with neglect for wastewater. Compared to water availability, scarcity and allocation, water quality has received relatively limited attention in the context of water management. Wastewater policies lag far behind, implementation and monitoring of which often fail.

4. Human rights provide practical guidance in managing wastewater and controlling water pollution. They offer a flexible framework that demands that States prioritize addressing the most urgent and serious impacts on human rights, whether they stem from domestic, industrial or agricultural water contamination. They call for a phased approach to progressive improvements in managing wastewater and controlling pollution, as illustrated by the concept of a wastewater ladder. Human rights call for a shift in priorities that would require States to focus on improving the lives and livelihoods of the most disadvantaged, those who are usually worst affected by contamination. Such a shift requires that greater attention be paid to the safe disposal and management of faecal sludge and septage, issues which are currently largely neglected in policy and practice. It also requires placing higher priority on finding solutions in informal settlements that are faced with the cumulative challenges of population density, lack of formal land tenure, contaminated environments and lack of infrastructure and services.

5. One of the reasons why the Special Rapporteur considers the present report very timely is the ongoing process to elaborate the post-2015 development agenda, including sustainable development goals. The Special Rapporteur considers it mandatory to integrate human rights holistically into the future development agenda.

6. To inform her views on the issue, the Special Rapporteur has engaged in a broad consultative process, including an expert consultation held in April 2013. The Special Rapporteur also received close to 40 written submissions (available from

www.ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/ContributionsWasteWater). This process has provided her with valuable guidance, and she is grateful to all those who contributed.

7. The section below contains an explanation of the concept of wastewater, outlines the impact of water pollution on the realization of human rights, and explores the interface between access to sanitation and wastewater management. Section III describes how households, agriculture and industry contribute to water pollution. Section IV describes how human rights can be integrated into wastewater management and water pollution control.

II. Setting the scene

A. Concept of wastewater

8. Wastewater can be defined as "a combination of one or more of: domestic effluent consisting of blackwater (excreta, urine and faecal sludge) and greywater (kitchen and bathing wastewater); water from commercial establishments and institutions, including hospitals; industrial effluent, stormwater and other urban run-off; and agricultural, horticultural and aquaculture effluent, either dissolved or as suspended matter".[1] Wastewater contains pathogens, heavy metals, chemical contaminants such as acids, but it also contains valuable nutrients.[2]

9. Wastewater should be understood to include not just sewage, but also faecal sludge and septage originating from pit latrines and septic tanks.[3] Finding the appropriate terminology to cover all those types of wastewater is difficult, and an all-encompassing neutral term is yet to be found. However, in following the definition of wastewater as it is emerging in the sector, and seeing the need for a term that encompasses all forms of sewage, sludge and septage, the Special Rapporteur will use this broad understanding of the term "wastewater".

10. Wastewater should not be seen as "waste" without further use. When properly treated,[4] it can be reused for industrial cooling and processing, irrigation in agriculture, parks, and horticulture, and even drinking purposes.[5] Wastewater also contains many resources that can be recovered, such as nutrients and organic matter.

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[1] United Nations Environment Programme and United Nations Human Settlements Programme, *Sick Water: the central role of wastewater management in sustainable development* (2010), p. 15.

[2] UN-Water, background discussion paper on wastewater and water quality targets and indicators (2013) (unpublished), p. 9.

[3] Economic Commission for Europe and UN-Water, "The Wastewater and Water Quality Framing Paper, p. 3 (2013).

[4] Akiça Bahri, "Managing the other side of the water cycle: Making wastewater an asset", p. 32 (Mölnlycke, Sweden, Global Water Partnership Technical Committee Background Paper No. 13, 2009).

[5] UN-Habitat, *Global atlas of excreta, wastewater sludge, and biosolids management: Moving forward the sustainable and welcome use of a global resource*, p. 26 (Nairobi, 2008).

B. Increasing water pollution and continuing exposure, and their impact on human rights

11. Exposure to faeces and wastewater is a reality that many individuals face. Effects range from ill-health to hampering education and work. Global processes of change, including population growth, but more importantly, economic growth, changing lifestyles and diets, and urbanization will further increase the demand for water and produce growing volumes of wastewater. An estimated 1,500 km^3 of wastewater are generated worldwide per year,[6] which corresponds roughly to the volume of over 300,000 Maracanã football stadiums filled with wastewater up to the top. It is estimated that more than 80 per cent of all wastewater generated worldwide is not treated.[7]

12. Looking at on-site sanitation solutions, faecal sludge and septage are all too often not confined and treated, while not even included in the aforementioned figures. Faecal sludge, the management of which is often overlooked, if not ignored, presents a major health hazard, especially in urban areas. Designated disposal or treatment sites for faecal sludge often are lacking or are dysfunctional. After pits or tanks have been emptied, sludge is often dumped in the vicinity of peoples' dwellings, and hence remains a major health hazard.

13. Water safety is a central component of the human right to water, and large volumes of unmanaged wastewater compromise the availability of safe water. Water pollution also endangers other human rights. Unmanaged wastewater constitutes a hazard for both the environment and human health, the two being closely interlinked, as damage to the integrity of the ecosystem inevitably has an impact on human health and well-being. Dead zones are spreading in oceans and lakes, and many groundwater reservoirs have become polluted beyond remediation, thereby threatening the livelihoods of people relying on ecosystem services.

14. Water-related diseases make up a large part of the global disease burden, with more people dying as a result of polluted water than are killed in wars and other forms of violence.[8] Many so-called water-related diseases are in fact faeces-related diseases, which transmitted through contact with or ingestion of water contaminated with faeces.[9]

15. It is difficult to determine what share of the disease burden and other negative impacts can be attributed to inadequate wastewater management and water contamination. Many public health benefits are derived from access to sanitation, avoidance of direct contact with human excreta and improvement of hygienic practice. However, where wastewater is not even confined and people are exposed to pathogens, lack of wastewater management has negative impacts. Conversely, an increase in the level of wastewater management has been shown to result in public

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[6] United Nations Educational, Scientific and Cultural Organization (UNESCO), *United Nations World Water Development Report, Water for People, Water for Life*, p. 87 (Paris, 2003).

[7] UNESCO, *United Nations World Water Development Report, managing water under uncertainty and risk*, p. 66 (fourth edition) (Paris, 2012).

[8] *Sick Water*, p. 5.

[9] Maggie Black and Ben Fawcett, *The Last Taboo: Opening the Door on the Global Sanitation Crisis*, p. 72 (London, Earthscan, 2008).

health benefits such as reductions in disease mortality independent from income levels and access to sanitation.[10]

16. Large-scale contamination sometimes has visible direct impacts, but more frequently the impacts of inadequate wastewater management and water pollution are invisible and become manifest only in the long term. They affect not only the surrounding communities, but also those communities that are downstream from the source of pollution, resulting in an out-of-sight, out-of-mind phenomenon. Yet, pathogens in sewage and other contaminants cause a range of diseases, either through contamination of drinking water, through direct contact or through their entry into the food chain. Inadequate wastewater management restricts development, threatens livelihoods and increases poverty as a result of increased costs of health care as well as reduced productivity and educational opportunities.

17. Despite those negative impacts, it has sometimes been argued that development inevitably results in pollution and that developing countries have the right to pursue a path of development that includes pollution. However, the pursuit of economic development must not lead to violations of human rights, and the right to development cannot be invoked to justify violations of the human right to water or other human rights. Instead, development must be sustainable, balancing economic, environmental and social interests. In the case of *Vellore Citizens Welfare Forum v. Union of India*,[11] which dealt with untreated effluent discharged by tanneries, the Supreme Court of India underlined the importance of reconciling those interests. It acknowledged that the industry, which was generating foreign exchange and providing employment opportunities, was of vital importance, but stressed that the economy must not destroy the ecology, nor should it constitute a hazard to human health.

18. Others have argued that people themselves should decide whether to prioritize wastewater management and how to allocate scarce resources. While it is certainly true that communities themselves should make decisions in a participatory manner, this line of argument overlooks the fact that apart from one's own human rights, one person's lack of wastewater management mostly affects other people's livelihoods and health. Whether or not to manage wastewater is not just a personal or community choice, but is a collective problem. In terms of participation, this issue points to the need to involve all those concerned in decision-making, i.e., communities living downstream and others affected by wastewater. On the part of the State, respect for human rights imposes an obligation to protect, which requires States to shield people from human rights abuses through the actions of non-State actors, including other individuals. The fact that one person gains access to sanitation must not be to the detriment of others through exposing them to the former person's faeces.

19. Hence, the question that is sometimes brought up — whether people have a right to have their wastewater treated — may not be the main issue. What is more relevant is that others have the right to not to be exposed to the negative impacts of unmanaged wastewater. This is all the more true because not everyone is affected to the same extent. Individuals and communities that are marginalized, for instance people

[10] Kartiki S. Naik and Michael K. Stanstrom, "Evidence of the influence of wastewater treatment on improved public health", International Association on Water Pollution Research, *Water, Science and Technology Journal*, Vol. 66, Issue 3 (London, Cambridge University Press, 2012).

[11] Supreme Court of India, *Vellore Citizens Welfare Forum v. Union of India*, 28 August 1996 [1996], All India Reporter 2715.

living in informal settlements, find their human rights are compromised much more often than do others. Such informal settlements are often situated along riverbanks or low-lying land where polluted water tends to accumulate. Dwellers are thereby exposed to contamination, especially when they use polluted water for drinking.

C. From access to sanitation to wastewater management

20. In 2010, the human right to water and sanitation was explicitly recognized by the General Assembly and the Human Rights Council, and is guaranteed as a component of the human right to an adequate standard of living. The Special Rapporteur, in her capacity as an independent expert on the issue of human rights obligations related to access to safe drinking water and sanitation, defined sanitation from a human rights perspective as a system for the collection, transport, treatment and disposal or reuse of human excreta and associated hygiene. The Special Rapporteur has stated that States must ensure without discrimination that everyone has physical and economic access to sanitation, in all spheres of life, which is safe, hygienic, secure, socially and culturally acceptable, provides privacy and ensures dignity. She further considers that domestic wastewater, which flows from toilets, sinks and showers, should be included in the description of sanitation insofar as water regularly contains human excreta and the by-products of the associated hygiene (see A/HRC/12/24, paras. 63 and 87). The Committee on Economic, Social and Cultural Rights endorsed this definition at its forty-fifth session in its statement on the right to sanitation. (E/C.12/2010/1).

21. Human rights bodies thus understand sanitation broadly to include the treatment and disposal or reuse of excreta and associated wastewater. Sanitation does not stop simply with the use of latrines or toilets, but includes the safe disposal or reuse of faeces, urine and wastewater. Such a broad understanding is warranted, as sanitation concerns not only one's own right to use a latrine or toilet, but also the rights of other people, in particular their right to health, on which there might be negative impacts.

22. In a similar vein, the Secretary-General's Advisory Board on Water and Sanitation, at a briefing in January 2013 calling for a post-2015 global goal on water, stated that for citizens and countries to enjoy the health benefits, economic growth and human dignity that comes with safe sanitation and clean water, a holistic approach that incorporating wastewater collection, treatment and reuse is necessary (available from www.unsgab.org/content/documents/UNSGABpost2015brief.pdf).

23. Moving beyond the direct link to sanitation and wastewater from households, the Special Rapporteur sees the need to consider wastewater from other sources, including the industrial and agricultural sectors, because contamination from those sources has a significant impact on water quality, and the impact of domestic wastewater cannot be considered in isolation. As long as wastewater is generated, whether it be from agriculture, industry, or settlements, and is not confined and appropriately treated, human rights will be at risk of being violated.

24. However, such a broad understanding is not always commonplace; for instance, it is not found in the Millennium Development Goals. The Goals have

focused attention on improving access to sanitation facilities,[12] while far less attention is devoted to the collection and treatment of waste. In a report to the General Assembly on the human rights obligations related to access to safe drinking water and sanitation, the Special Rapporteur noted that the definition of "improved" sanitation does not cover the proper discharge, treatment or reuse of human waste, and that as far as the water target was concerned, even though the target itself calls for access to drinking water that is safe, the way this is measured does not fully capture the dimension of water quality. She also noted that the accompanying indicator looks at "improved" water sources based on types of technology, which does not necessarily guarantee that water from improved sources is actually safe (see A/65/254, paras. 24 and 25).

25. Estimates show that sanitation coverage would be significantly lower if sewage treatment were taken into account as an additional criterion: according to that definition, 4.1 billion people lack access to sanitation.[13] The coverage rate may decrease even further when considering other types of sanitation facilities, such as pit latrines, and discounting of those that expose communities to harmful substances when pits are not adequately emptied and their content treated.[14] Similarly, when water safety is added into the equation, the number of people with access to safe drinking water has to be adjusted downward, with an estimated 1.8 billion people using unsafe water.[15]

26. Recent developments indicate that the understanding of the importance of wastewater management is on the rise. In 2010, the General Assembly adopted resolution 65/153, which encouraged all States to approach the sanitation issue in a much broader context and encompass all its aspects, including wastewater treatment and reuse. Moreover, the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want" (see General Assembly resolution 66/288, annex), stresses the need to adopt measures to significantly reduce water pollution and increase water quality and significantly improve wastewater treatment. Most recently, the High-level Panel of Eminent Persons on the Post-2015 Development Agenda included in its report on a new global partnership for the eradication of poverty and the transformation of economies through sustainable development the recycling or treatment of wastewater as a target under its illustrative goal on access to water.[16]

27. While ensuring access to sanitation facilities is a significant step that will bring huge gains in terms of privacy and dignity, the health gains will materialize fully only when human excreta are properly confined, disposed of and managed.

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[12] Malcolm Langford and Inga T. Winkler, "Quantifying Water and Sanitation in Development Cooperation: Power or Perversity?", available from http://harvardfxbcenter.org/files/2013/06/Goal-7_Langford-and-Winkler_Final_linked1.pdf.

[13] Rachel Baum, Jeanne Luh and J. Bartram, "Sanitation: A Global Estimate of Sewerage Connections without Treatment and the Resulting Impact on MDG Progress", 1998, Water Institute, University of North Carolina (Chapel Hill, 2013).

[14] Ibid., p. 2,000.

[15] K. Onda, J. LoBuglio and J. Bartram, "Global Access to Safe Water: Accounting for Water Quality and the Resulting Impact on MDG Progress", *International Journal of Environmental Research and Public Health*, vol. 9, issue 3, pp. 880-894, Water Institute, University of North Carolina (Chapel Hill, 2012).

[16] Report of the High-level Panel on the Post-2015 Development Agenda, p. 42 (available from http://www.post-2015hlp.org/the-report/).

Lessons learned from experiences in community-led total sanitation demonstrate how important it is for communities to be entirely open-defecation-free. As long as faeces are still found in the community environment, risks to health will remain (see www.communityledtotalsanitation.org). The same holds true when wastewater ends up in the nearby or larger environment: the community, or other communities living downstream, can be negatively affected. Not dealing with emptying, disposing of and treating sludge puts at risk the benefits of increased sanitation coverage.[17]

28. The Special Rapporteur wishes to emphasize the fact that she does not call for efforts to be diverted away from ensuring access to sanitation, which must remain a priority. She has repeatedly stressed the crucial role of adequate sanitation in ensuring human health, privacy and dignity. At the same time, she considers that efforts need to go beyond ensuring access to basic sanitation, in particular in countries that have already achieved (almost) universal coverage, but lack adequate wastewater management. The imperative of wastewater management and pollution control is even more apparent for contamination stemming from large-scale agriculture and industry.

29. Calling for increased attention to wastewater management from a human rights perspective does not necessarily imply that everyone should be connected to sewage treatment, nor that adequate wastewater management must be achieved overnight. The human rights framework calls for measures and technologies that are appropriate for a given context, including on-site sanitation solutions, and requires such measures to be taken progressively to achieve phased progress illustrated by the concept of a wastewater ladder.

III. Contamination from different sources

A. Wastewater from households

30. Increasing water consumption also means increasing discharge of wastewater. The confinement, transport and treatment of excreta and associated wastewater are highly problematic in many urban agglomerations. Owing to the sheer quantities of wastewater and densities in urban areas resulting in less space to discharge waste safely, the impact of water pollution from domestic sources tends to be more pronounced in urban than in rural areas.

31. Domestic wastewater management starts from an array of technological solutions, including dry toilets, pit latrines or septic tanks, and single flush or conventional flush toilets as well as basins, roof and yard drains. In sub-Saharan Africa, for example, septic tanks are estimated to represent roughly 25 per cent of all urban sanitation facilities, while pit latrines serve another 50 per cent.[18] Although a large proportion of the global population does not use flush toilets, attention of decision makers is often on these, together with piped networks of sewers and sewage treatment plants. Policies for the collection and treatment of

[17] A. Opel, "Challenge critical: absence of faecal sludge management shatters the gains of improved sanitation coverage in Bangladesh", Second Faecal Sludge Management Conference (Durban, South Africa, 2012).

[18] M. Kjellén and others, "Global Review of Sanitation System Trends and Interactions with Menstrual Management Practices", p. 4 (Stockholm, Stockholm Environment Institute (2012)).

faecal sludge and septage lag far behind, although they offer huge health and environmental benefits at much lower costs than sewer networks.

32. During her country missions, the Special Rapporteur has constantly witnessed challenges in the operation and management of septic tanks and the disposal of septage, giving rise to severe challenges for the realization of human rights.[19] On-site sanitation solutions have been promoted as a way for people to quickly "gain access to sanitation" without giving due regard to what happens when pits fill up. Often, tanks are not properly maintained and pollutants leak into groundwater and environment, impairing the health of neighbouring residents or those depending on shallow aquifers. Once the tanks are full, they need to be emptied. This process of emptying, collection and transportation usually lacks regulation, control and accountability, resulting in contents being dumped by collection trucks relatively close by, into waterways or the larger environment, adjacent to locations where people live, farm, fish or work. Trucks serving a given municipality are often not sufficient to meet the demand. Moreover, poor households, in order to avoid periodically hiring unaffordable trucks, might divert the water overflowing from their tanks leading to continued exposure and health risks.

33. Another largely ignored area is the collection and management of greywater as well as stormwater. The latter frequently contains much higher levels of pollution than commonly assumed so that more efforts are needed to integrate stormwater into wastewater management. The associated challenges are exacerbated during times of flooding. The Constitutional Chamber of Costa Rica found that poorly maintained sewage systems, which contributed to the flooding of households with wastewater during periods of heavy rainfall, violated the right to health.[20]

34. Where a sewer system does exist, treatment of wastewater does not necessarily take place before it is discharged into bodies of water. In some cases, only part of the sewer system may be connected to a wastewater treatment plant, whereas the rest is discharged into watercourses without treatment. Even when connected to a treatment plant, this does not always guarantee continuous and sufficient treatment (see A/HRC/12/24/Add.1, para. 73). The reasons for those failures are manifold, but they all boil down to the low priority afforded to wastewater management or to the advancement of solutions that are inappropriate in a given context. Treatment plants are often underdimensioned with far more connections to the sewer network than the capacity of the plants would allow for (see report on mission to Bangladesh, A/HRC/15/55, para. 58). In many instances, connections are ineffectively controlled and regulated, with illicit connections adding to the strain of the system (see A/HRC/12/24/Add.1, para. 73). Numerous anecdotes point to the construction of "white elephants", large-scale projects that are not designed for local conditions characterized by a combination of inappropriate scale, inappropriate location, and/or inappropriate technology.[21] Such plants often fail to operate after short periods of time. In addition to such large-scale failures, decaying, outdated and dysfunctional

[19] See reports on missions to: Egypt, A/HRC/15/31/Add.3, paras. 20, 41, 42, 52; Costa Rica, A/HRC/12/24/Add.1, para. 38; Uruguay, A/HRC/21/42/Add.2, para. 35; Kiribati, A/HRC/24/44/Add.1, 2013, paras. 30, 34; Tuvalu, A/HRC/24/44/Add.2, paras. 14, 26, 27; and Thailand, A/HRC/24/44/Add.3, paras. 45, 47.

[20] Decisions No. 11796 of 17 August 2007 and No. 17007 of 21 November 2007.

[21] Sick Water, p. 60.

infrastructure is common owing to the neglect of the need for operation and maintenance (see A/HRC/24/44, paras. 4, 14, 16 and 22).

B. Contamination from agriculture

35. Agriculture is the largest water user, accounting for about 70 per cent of global water use, hence producing significant amounts of water polluted with pesticides and fertilizers. It contributes to water pollution mainly as a non-point polluter: residues of agricultural production percolate to groundwater aquifers and streams in a manner that is extremely difficult to trace, quantify or regulate.[22] Moreover, livestock rearing poses problems in terms of the disposal of faeces and urine high in nitrate and phosphate, and partly pharmaceuticals. The Special Rapporteur found in Costa Rica that the use of certain pesticides used in large-scale plantations has been associated with cancer when leaching into groundwater (see A/HRC/12/24/Add.1, para. 44). As in other sectors, patterns of inequalities emerge: in one country, research revealed that communities housing high proportions of minority residents are more likely to rely on water that has high levels of nitrates.[23] Such pollution directly endangers the health of water users or indirectly threatens their livelihoods and food supplies through the destruction of ecosystem services.

C. Industrial water pollution

36. Industry is estimated to dispose of 300 million to 400 million tons (the weight of the entire human population) of heavy metals, solvents, toxic sludge and other waste into water bodies every year.[24] Industries that generate large amounts of waste include mining, pulp mills, tanneries, sugar refineries and pharmaceuticals.[25] Mostly, industry is a point polluter, which in theory is easier to control and regulate. However, it includes discharge from small-scale, partly informal industries, which might be difficult to regulate in practice. In total, approximately 70 per cent of industrial wastewater in developing countries remains untreated.[26]

37. Water pollution can endanger access to safe drinking or irrigation water of downstream users. Heavy metals also enter the food chain, thus putting at risk the human rights to food and to health.[27] Often, water pollution concerns poorer communities much more than others, as lack of infrastructure forces them to use unsafe sources. In one city, wells and boreholes used by residents of a lower middle class area have been shown to be polluted by cadmium and lead, with concomitant health risks of cancer and kidney damage.[28]

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[22] Background discussion paper on wastewater, p. 5.

[23] Carolina Balazs and others, "Social Disparities in Nitrate-Contaminated Drinking Water in California's San Joaquin Valley", *Environmental Health Perspectives*, vol. 119, No. 9.

[24] World Water Assessment Programme Water and Industry (2010).

[25] Background discussion paper on wastewater.

[26] UNESCO, *United Nations World Water Development Report* (third edition) (Paris, 2009).

[27] Ibid., p. 139.

[28] M. A. Momodu and C. A. Anyakora, "Heavy metal contamination of ground water: the Surulere case study", Research Journal Environmental and Earth Sciences, 2(1), pp. 39-43, University of Lagos, Research Journal Environmental and Earth Sciences (2010).

38. Polluting industries frequently expand into areas in which disadvantaged populations, such as indigenous communities, reside, and such populations bear the brunt of the ill effects of industrial water pollution, including health problems and the disruption of traditional livelihoods (see A/HRC/18/35, paras. 30-36). For instance, oil operations have an impact on water quality, drinking water often being contaminated through oil spills, for example in the Niger Delta, where the African Commission on Human and Peoples' Rights found spills and that the resulting pollution brought about devastating effects on human health and livelihoods.[29] Such contamination often goes hand in hand with disrespect for the human rights principles of meaningful participation, and free, prior and informed consent (see A/HRC/18/35, para. 47).

39. The mining sector poses particular challenges. The Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes explained in a report that no other resource is more affected by the extent and level of degradation of quality and quantity owing to unsound management of hazardous substances and waste from extractive industries than water. Substances seep, leech and drain into water systems, contaminating not only the water reservoirs of the population living in the immediate area around the mine, but also of communities living hundreds of kilometres downstream (see A/HRC/21/48, para. 39).

40. Once valuable materials have been extracted, mine tailings can cause severe water pollution with sometimes devastating results when tailing facilities fail (ibid., para. 17). Mining waste has also been disposed of directly into watercourses (ibid., para. 11). Most seriously, water resources can be affected by acid drainage resulting from the decomposition of minerals triggered by mining activities. The legacy of acid drainage can continue for centuries long after the mine has been closed which results in water quality problems, with no current owner of the mine who can be held directly accountable.

41. Activities of the fossil fuel industry to recover shale gas and other unconventional reservoirs have increased through the use of hydraulic fracturing (or fracking), in which a mix of water and chemicals is injected at high pressure into a well to extract underground resources, such as oil, natural gas and geothermal energy. Both wells and pits are very likely to have ecological impacts, including the pollution of groundwater aquifers and contamination of drinking water (see report on mission to the United States, A/HRC/18/33/Add.4, paras. 43-46). From the point of view of human rights, largely unanswered questions arise concerning health and safety.

IV. Integrating human rights in wastewater management and water pollution control

42. The challenges arising from contamination call for concerted efforts to achieve sustainable wastewater management and pollution control based on human rights.

[29] African Commission on Human and Peoples' Rights, Decision 155/96, taken at the eighteenth ordinary session, in 2001 (ACHPR/COMM/A044/1659, para. 68).

A. Sound legislative, regulatory and institutional frameworks

43. Wastewater management takes place at different levels of government, which interact and overlap. While legislative and policy frameworks are frequently drawn up at the national level, it might be incumbent on local governments to implement them. Also, wastewater is not always a matter of the federal State. Balancing decentralization and central coordination is a major task. Even at the national level, wastewater management tends to be fragmented across different ministries and departments, including health, environment, infrastructure and agriculture, among others.

44. Moreover, wastewater management concerns a host of different actors. Apart from Government actors, international organizations and donors, the private sector and civil society contribute to wastewater management, and coordination is not always ensured. The obligation of States to protect human rights and regulate the activities of third parties as well as the responsibilities of non-State actors therefore come more and more to the fore (see Guiding Principles on Business and Human Rights (A/HRC/17/31)).

1. Devising appropriate legal frameworks, policies and strategies

45. Water and wastewater are governed by an extensive web of water law and policy, ranging from international to national law, policies, and decrees to local rules and customary law. Water flows across territorial boundaries; hence, its governance also needs to extend beyond national boundaries. Among existing instruments, the 1997 Convention on the Law of Non-Navigational Uses of International Watercourses must be noted. While the convention has not yet entered into force, it represents a codification of customary international law to a large extent. Article 7 requires States to take all appropriate measures to prevent the causing of significant harm to other States sharing an international watercourse.

46. The human rights perspective strengthens those obligations. The Maastricht Principles on Extraterritorial Obligations of States in the area of Economic, Social and Cultural Rights, recently adopted by a group of experts in international law and human rights, underscore the obligation of States to avoid causing harm extraterritorially, stipulating that States must desist from acts and omissions that create a real risk of nullifying or impairing the enjoyment of economic, social and cultural rights extraterritorially.[30] The principles also affirm the obligation of States to protect human rights extraterritorially,[31] i.e., to take necessary measures to ensure that non-State actors do not nullify or impair the enjoyment of economic, social and cultural rights.[32] This translates into an obligation to avoid contamination of watercourses in other jurisdictions and to regulate non-State actors accordingly.

47. At the national level, legal frameworks have resulted in vastly different outcomes. On the one hand, they may entrench existing power structures and inequalities or may protect traditional water rights. Integrating human rights requires the reform of relevant water and wastewater law and policy frameworks. What is often

[30] Maastricht Principles on Extraterritorial Obligations in the area of Economic, Social and Cultural Rights (2011), Principle 13, available from http://www.maastrichtuniversity.nl/web/Institutes/MaastrichtCentreForHumanRights/MaastrichtETOPrinciples.htm.

[31] Ibid., Principle 23.

[32] Ibid., Principle 24.

lacking is an efficient framework to deal with faecal sludge management. The same holds true for regulating diffuse pollution.

2. Strong regulation and regulators combined with incentives

48. To curb water pollution effectively, regulation must target all sectors and cover the whole country, giving priority to the elimination of the most urgent and serious challenges, which vary from country to country and within countries. They might stem from the use of pesticides and fertilizers in agriculture in rural areas, the non-confinement and non-treatment of sludge and septage in densely populated urban areas, or from industrial wastewater in areas that experience sudden economic growth. States have to assess the situation at the microlevel and prioritize addressing the most urgent challenges.

49. Regulations must aim both at managing wastewater to reduce the impact of pollution as well as preventing pollution. Regulation can set standards with numerical limits for certain substances or entirely ban particularly dangerous substances. It can also foresee the issuance of permits for discharges of a certain volume and quality. Regulation can, and must, set standards for improving the collection, treatment and reuse of wastewater, while incorporating sludge management. The precautionary principle must be enshrined with regard to water pollution threats, which are not well understood but have the potential to endanger human rights. Another approach, which is used to ensure that drinking water is not contaminated, is to establish safeguard zones. Many European countries have done so based on the European Water Policy Framework Directive.[33] Such zones usually impose limitations on certain activities, such as agriculture and tourism, among others.

50. Looking at households, some countries make it mandatory to connect to sewage lines, where they are available (see A/HRC/21/42/Add.2, para. 18). In countries with extensive sewerage networks, this may be a feasible measure, but it requires ensuring that connections are affordable even for people living in poverty, for instance, through the targeted use of subsidies. Often, challenges remain in that regard.

51. One of the biggest incentives for improved wastewater management is the increasing understanding that wastewater is a resource.[34] In the agricultural sector, an estimated area of between 4 million and 20 million ha worldwide (i.e., the surface area of Switzerland and Senegal, respectively) is irrigated with wastewater or fertilized by sludge.[35] While this use is welcome, when the use is unregulated, it exposes producers, residents and consumers to health risks.[36] Therefore, the risks and benefits of irrigation with wastewater need to be balanced. The Guidelines on the Safe Use of Wastewater, Excreta and Greywater in Agriculture and Aquaculture[37] provide useful standards. In Namibia, the Special Rapporteur witnessed efforts to treat wastewater to the standard of drinking water (see A/HRC/21/42/Add.3, para. 15).

52. Frameworks must include fines and penalties as a way of enforcement. In cases of serious breaches, countries may also turn to criminal law. Finally,

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[33] Directive 2000/60/EC of the European Parliament and of the Council.

[34] See, e.g., Valentina Lazarova and others (eds.), "Milestones in Water Reuse", IWA Publishing.

[35] B. Jiménez and others, "Wastewater, sludge and excreta use in developing countries", in P. Drechsel and others (eds.), "Wastewater irrigation and health", pp. 3-28.

[36] *Global atlas of excreta*, pp. 32 and 33.

[37] World Health Organization, Guidelines for the Safe Use of Wastewater, Excreta and Greywater (vol. 4).

successful regulation depends not only on standard-setting, but also on strong independent regulators. Currently, most agencies are underfunded and poorly trained, which demonstrates an urgent need for improvement. Regulators need to have the capacity, in terms of human resources, skills, funding and independence from interference, to monitor whether regulations are being complied with, carry out on-site inspections, and impose fines and penalties in the case of breaches.

3. Making institutions work in the public interest

53. Water and wastewater management is often entrusted to large and powerful "hydrocracies"[38] that are trained for, and have vested interests in, large infrastructure. Many administrations and funding agencies favour sewer networks and sewage treatment plants over more decentralized systems. Such preferences should be contrasted with the institutional framework for faecal sludge management: often there are no clear institutional responsibilities for wastewater management beyond sewerage networks.[39] This gap is exacerbated in informal settlements that lack legal land tenure, which, where sanitation facilities exist at all, tend to be served largely by septic tanks and pit latrines. Municipalities often deliberately avoid providing formal services in those areas because they fear legitimizing informal settlements. Legislative frameworks must assign institutional responsibilities for wastewater and, more specifically, faecal sludge management. The challenges in informal settlements are among the most urgent. As a short-term solution, non-governmental organizations have acted as intermediaries between municipalities and users to allow people to gain access to services before a more long-term solution is found.

54. In other instances, the institutional frameworks exist and assign responsibilities to municipalities, but they lack endowment with financial, technical and human resources. As such, delegation results in dispersal of effort and inaction. Therefore, institutional decentralization must be accompanied by necessary budgets and capacity. States must ensure that local authorities have the necessary financial, human and other resources to discharge their duties effectively. More broadly, institutional development and capacity-building are essential to ensure that laws and policies can be implemented and enforced.

55. Corruption is a significant challenge, whether in the context of large investments and contracts that are prone to benefit-reaping corrupt behaviour or in the context of small-scale entrepreneurs, for instance those emptying pits and tanks, where bribes have sometimes become commonplace. It is estimated that curbing corruption could lower investment requirements by 20-70 per cent.[40] Widespread corruption raises the question as to whether States are spending their maximum available resources on realizing human rights and using resources efficiently. Moreover, concerns arise about the affordability of services. Carefully designed subsidy schemes might lose their meaning when people have to pay additional bribes to gain access. The human rights framework contributes to preventing and

[38] C. Molle, P. P. Mollinga and P. Webster, "Hydraulic bureaucracies and the hydraulic mission: flows of water, flows of power", pp. 328-349, *Water Alternatives*, 2 (2009) 3.

[39] A. Zimmer, "Everyday governance of the waste waterscapes. A Foucauldian analysis in Delhi's informal settlements", pp. 194 and 195 (Bonn, Universitäts-und Landesbibliothek, 2012).

[40] *United Nations World Water Development Report* (third edition), p. 70 (Paris, 2009).

combating corruption through strengthening participation, providing access to information and through transparency and accountability.

4. Ensuring participation

56. Policymakers often have little experience in working with the populations concerned, which makes participation difficult. All too often, participation is understood as a mere "tick-the-box exercise". Yet, access to information, transparency and participation are key for realizing human rights and for ensuring the sustainability of services.

57. All people and stakeholders concerned must be given opportunities to participate in decision-making about wastewater management. The human rights perspective stipulates important requirements to involve not just those for whom wastewater infrastructure is built, but also those on whom the lack of wastewater treatment will have an impact. People should influence decision-making on types of facilities and systems, priorities in allocation of resources and approval of large-scale projects, among many other issues. Participation in conducting impact assessments as outlined below is essential. While certain aspects of wastewater management require technical expertise, such inputs must be balanced with the needs and preferences of people.

B. Contextualized measures and technologies

58. Human rights do not prescribe technology or management choices, but appropriate options can contribute in significant ways to their realization. What is appropriate depends on context — whether conventional, simplified, condominial, centralized or decentralized sewage systems, or on-site sanitation solutions with adequate septage disposal and management. While population growth and urbanization leads to challenges in many parts of the world, areas facing population decline require different approaches. In Japan, infrastructure is being adapted to decreasing demand and is being downsized accordingly (see A/HRC/18/33/Add.3, para. 20).

59. From a human rights perspective, the priority is to start where exposure is the greatest, instead of further improving services where basic treatment standards are already respected. Ever larger investments in sophisticated sewage treatment plants are not a priority. Rather, efficient confinement and treatment of septage and sludge, and the eradication of open defecation need to be prioritized.

60. A phased approach can be illustrated by the "wastewater ladder",[41] which allows for gradual improvements of collection and treatment standards in line with the obligation of States to progressively realize human rights. The principle of progressive realization implies that the full realization of human rights cannot be achieved immediately, while obliging States to move as expeditiously and effectively as possible towards the goal of full realization.

61. Technically, wastewater treatment is possible to almost any standard. However, water of extremely high quality is required only for drinking or certain human uses; other livelihood activities and certain industrial and agricultural uses can do with

[41] Background discussion paper on wastewater, p. 24.

water of lower quality. This allows for a phased approach to wastewater management, as even preliminary or primary treatment can bring significant benefits. The PRODES programme in Brazil provides an interesting example in this context. It starts by stipulating a minimum requirement for primary treatment and continues with increasing standards, determined according to the specific context (see www.ana.gov.br/prodes/).

62. Rather than replicate the sewer plus sewage treatment plant model under all circumstances, the use of low-cost, flexible technologies should be considered where appropriate. Too often sewer lines are laid without the appropriate end-of-pipe treatment facility. Equally, sewage treatment plants are built without sufficient planning for the sewage to reach them. Decentralized sanitation options might show benefits from the perspective of human rights in terms of increased options to participate in decision-making and lower costs, thereby enhancing opportunities to extend services to all.

63. Many options exist to improve on-site sanitation and recycle human waste, especially in rural areas. However, it is crucial to also find solutions for densely populated informal settlements in urban areas. Not only do pits and septic tanks need to be emptied, but also their contents must be properly disposed of or reused. Many traditional wastewater treatment plants cannot deal with sludge, so other solutions, for instance reuse for energy production or fertilizer, can be promoted. Alternatively, processes for treating sludge can be made available at existing or new treatment plants. In South Africa, eThekwini Metropolitan Municipality turned its attention to the challenge of full and overflowing latrines and put into place a programme to empty latrines every five years at no cost to the household (see www.durban.gov.za/City_Services/water_sanitation/Policies_Plans_Guidelines/Pages/Water_Services_Development_Plan.aspx). In Japan, the johkasou system, which combines a septic tank with the on-site treatment of septage has been developed (see A/HRC/18/33/Add.3, para. 15).

64. It is important that measures be taken not only to build new facilities, but also to meet the challenges of coping with dysfunctional infrastructure. It is crucial that measures are taken to ensure operation and maintenance.

C. Financing and pricing in line with human rights

65. Investing in wastewater management is closely tied to technological choices, although financing needs are not limited to infrastructure, but encompass management, monitoring, policy development, capacity-building, awareness-raising and enforcement, among others. Different estimates exist as to the sums required to retrofit the world's population with modern infrastructure and take care of decaying infrastructure in industrialized countries. Figures range from $75 billion to $904 billion per year over the next 25 to 42 years, but the reliability of those numbers is questionable.[42] In any case, the sums needed are astronomical.

66. While there is scope for increasing wastewater charges in many areas, removing subsidies for industries and agriculture and introducing the "polluter pays" principle more stringently, it is unlikely that the necessary sums can be fully recovered from users. In many countries, wastewater management is still financed

[42] Ibid., p. 10.

through budget allocations or donor support. The Special Rapporteur has previously called for resource allocation to the sector to be increased (see A/66/255, paras. 11 and 12).

67. Just as important as the absolute amount of resources is how those resources are targeted. The priority must be to achieve basic levels of service for everyone before moving to higher standards, in particular by targeting the most disadvantaged. Current spending patterns are not always aligned with those priorities, and often benefit those who are relatively well-off (ibid., paras. 41 and 42). Funding is disproportionately targeted towards large systems in urban areas (e.g., wastewater treatment facilities and sewerage pipelines) compared with basic services in rural areas and deprived urban areas (e.g., latrines, boreholes and hand pumps). Currently, 62 per cent of all sectoral aid goes to developing large systems, while only 16 per cent goes to basic systems.[43] Because of the limited reach and high costs associated with sewerage systems, very few people benefit from them, and the ones who do are likely to be the better-off. In order to eliminate inequalities, financing less cost-intensive and more context-appropriate systems should be given higher priority, as should other approaches to prioritize coverage in poorer and marginalized areas.

68. Looking beyond the domestic sector, the "polluter pays" principle must be enforced, including the introduction of nuanced payment structures according to types of pollution and the costs of treatment. Big polluters must pay for their full share of wastewater management. For large companies, requirements to treat wastewater at source can be a useful tool to guarantee that treatment costs are internalized.

69. Another approach is levying a water conservation tax, as in Singapore (see www.pub.gov.sg/general/Pages/WaterTariff.aspx). Similarly, Costa Rica has introduced an environmental tax for discharging polluting substances in water through the adoption of a regulation based on the "polluter pays" principle (see A/HRC/12/24/Add.1, para. 60). Other countries also impose financial charges for discharges to public sewers to avoid externalization of costs. Taxes on the use of fertilizer are a means to reduce pollution in the agricultural sector.[44]

70. Finally, the costs of adequate wastewater management are certainly an issue; however, the Special Rapporteur urges policymakers to consider the costs of inaction. Remaining inactive and letting contamination continue unabated means that the huge economic benefits of reducing water pollution and associated health impacts as well as increased productivity and school attendance would not be reaped. While requiring large initial investments, the costs of prevention and treatment by far outweigh the costs of inaction in the long term.[45] Studies on the economic returns of sanitation interventions show that both septic tanks with treatment and sewerage with treatment have a positive cost-benefit ratio, for instance of about 1:4 in the Philippines.[46] Another study in Indonesia that examined

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[43] World Health Organization/UN-Water, *Global Annual Assessment of Sanitation and Drinking Water*, p. 30.

[44] Thomas Harter and Jay R. Lund, "Addressing Nitrate in California's Drinking Water", p. 7 (University of California, Davis, 2012).

[45] The Wastewater and Water Quality Framing Paper.

[46] World Bank, Water and Sanitation Programme, "The Economic Returns of Sanitation Interventions in the Philippines", p. 4 (Jakarta, 2011).

the impact of downstream water pollution found that the benefits of treating domestic and industrial wastewater offset the costs by a factor of 2:3.[47]

D. Strengthening transparency, accountability and compliance with human rights

71. Transparency and accountability are among the key principles of human rights. Impact assessments can serve to strengthen compliance with human rights, while accountability mechanisms are crucial for providing redress. Improving data lays the ground for better planning and monitoring.

1. Ensuring participation

72. While environmental impact assessments are carried out for certain projects, assessments that include evaluation of the impact on human rights are not undertaken as regularly. Moreover, there are many projects for which assessments are not yet commonplace, or when they are undertaken, lack transparency and community involvement with the excuse that the information is confidential.

73. When States plan projects for wastewater management or projects that may have an impact on water quality, they need to carry out impact assessments in line with human rights standards and principles. While the Special Rapporteur welcomes the fact that companies undertake impact assessments of their projects, she also sees challenges when the findings are not publicly accessible. Moreover, Government institutions need to be able to not only access such studies, but also to analyse and assess them independently, or carry out their own assessments, as the basis for determining whether licences for a given project will be granted. This requires capacity in terms of human, technical and financial resources and expert knowledge (see A/HRC/21/42/Add.2, para. 22).

74. A human rights impact assessment can be integrated within existing environmental or social impact assessments. Such assessments should be carried out both, ex-ante and ex-post, to ensure the prevention of negative impact and monitoring throughout the process. Assessments must be based on human rights standards and follow human rights principles in the process of conducting them as previously spelled out by the Special Rapporteur (see A/HRC/15/31, para. 45).

2. Providing accountability mechanisms

75. The human rights framework obliges States to put in place mechanisms to hold the relevant actors accountable. They must provide for redress mechanisms in the law and address barriers that may prevent access to justice in practice, including through measures to overcome obstacles such as prohibitive costs, language requirements, requirements of representation and geographic location of institutions. Members of the legal profession must be adequately trained in human rights law, including economic, social and cultural rights, non-discrimination law, and environmental law.

[47] "Downstream Impacts of Water Pollution in the Upper Citarum River" (West Java, Indonesia, 2011).

76. A range of accountability mechanisms can be used, not limited to the formal court system. Quasi-judicial and administrative mechanisms (including regulators) can play an important role in ensuring accountability by monitoring compliance with rights, reporting violations, and receiving complaints. Service providers should also establish grievance mechanisms or platforms to discuss user satisfaction so as to respond to complaints and concerns. The same holds true for companies whose water use has potential impacts on communities.

77. In some instances, applicants have successfully used litigation, before both national courts and international bodies. A community in Córdoba, Argentina, was affected by an overstretched sewage treatment plant that allowed raw sewage to flow into the local river. The court ordered the city both to provide the community with alternate sources of water in the short term and to reduce the contamination of the river.[48] A court in South Africa decided that a mining company was obliged to continue dealing with acid mine drainage and bear the costs for remediation even after it had sold the mine.[49] The European Committee on Social Rights found Greece in violation of the right to health owing to the country's failure to implement measures and enforce regulations to reduce the harmful impact of industrial pollution in the River Asopos.[50] The Colombian Constitutional Court ordered a pig farm that caused pollution to stop operations based on the applicants' right to health.[51]

3. Improving the data situation

78. Reliable and adequate data provides the basis for planning, monitoring and accountability. However, water quality is not sufficiently tested and monitored (see report on mission to Bangladesh (A/HRC/15/55, para. 68); and report on mission to Slovenia (A/HRC/18/33/Add.2, paras. 63 and 64)). Even where data is collected, it is not always made available (see A/HRC/15/31/Add.3, para. 36).

79. Figures on wastewater treatment are difficult to interpret, as statistics often measure only the percentage of collected wastewater that is treated, leaving aside wastewater and resulting pollution that are not collected in networks, as well as large volumes of groundwater that users extract in a private manner which then contributes to wastewater production. Systematic monitoring of small wastewater treatment systems, including cesspools and septic tanks is challenging (see A/HRC/18/33/Add.2, para. 21). Moreover, wastewater from diffuse sources is almost impossible to quantify and monitor.

80. However, efforts are under way to improve monitoring of water quality in various countries (see report on mission to Senegal (A/HRC/21/42/Add.1, para. 64)), including groundwater monitoring (see A/HRC/18/33/Add.2, para. 9; and A/HRC/24/44/Add.3, para. 42). In addition, the Joint Monitoring Programme also seeks to improve water quality monitoring at the global level.

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[48] Yamile Najle, "Human rights to water and sanitation in courts". Prepared for consultation with civil society organizations on good practices, Geneva, September 2010.

[49] *Harmony Gold Mining Company Ltd v. Regional Director: Free State Department of Water Affairs and Others* (68161/2008) [2012] ZAGPPHC 127 (29 June 2012), para. 39.

[50] *European Committee on Social Rights, International Federation for Human Rights v. Greece*, Complaint No. 72/2011, 23 January 2013, paras. 149-154.

[51] *María de Jesús Medina Pérez and others v. Alvaro Vásquez*, Seventh Chamber of Review of the Constitutional Court, Case No. T-34561, 22 November 1994.

E. Informing the post-2015 sustainable development agenda

81. In the context of the ongoing discussion on the Sustainable Development Goals and the post-2015 development agenda, apart from targets on the use of water, sanitation and hygiene,[52] it will be critical to integrate human rights standards and principles into goals on water resources[53] and wastewater management. The broader water resource management and wastewater management targets must not be approached from a purely environmental or economic perspective.

82. More emphasis should be put on the safety of drinking water. The Joint Monitoring Programme's proposal makes significant strides in that direction seeking to monitor bacterial contamination.[54] With regard to sanitation, its proposal incorporates the collection of wastewater and transportation to treatment places.[55] The Special Rapporteur welcomes those proposals.

83. However, owing to the "public bad" character of water pollution, it is imperative to formulate specific wastewater-related goals. Current proposals show a trend towards targets covering several dimensions: (a) preventing pollution; (b) reducing the impact of pollution through collection and treatment; and (c) reusing wastewater.[56] The Global Thematic Consultation on Water called for all used water and wastewater to be collected and treated before it is returned to nature and managed under principles of pollution prevention and reuse,[57] while the report of the High-level Panel suggests a target on the recycling or treatment of all municipal and industrial wastewater prior to discharge.[16]

84. From a human rights perspective, it will be crucial to integrate the concern for the most disadvantaged and most affected by water contamination. Framing targets accordingly might not be as straightforward as in the case of access to water, sanitation and hygiene. In that context, the elimination of inequalities can be monitored by comparing the levels of access of disadvantaged groups with that of the general population.[58] In the context of wastewater, access to wastewater management facilities does not correlate with those most affected by contamination. One proxy for monitoring progress for those most affected would be to focus monitoring on informal settlements, where challenges tend to be aggravated. Another crucial monitoring component is the collection and management of faecal sludge from septic tanks and pit latrines, as those technologies are predominantly used in low-income areas and have thus far received less attention, and the lack of safe disposal and management has direct impacts on the livelihoods of billions of people.

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[52] Joint Monitoring Programme proposal, available from www.wssinfo.org/fileadmin/user_upload/resources/A-proposal-for-consolidated-WASH-goal-targets-definitions-and-indicators_version7_Nov22_final.pdf.

[53] On the implications for water allocation, see Inga Winkler, "The Human Right to Water: Significance, Legal Status and Implications for Water Allocation" (Oxford, United Kingdom, Hart Publishing, 2012).

[54] Joint Monitoring Programme proposal, pp. 11 and 12.

[55] Ibid., pp. 12 and 13.

[56] Background discussion paper on wastewater, p. 21.

[57] UN-Water, report on The Post-2015 Water Thematic Consultation, The World We Want, endorsed conclusions and recommendations, p. 22 (available from www.worldwewant2015.org/file/341163/download/370843).

[58] Joint Monitoring Programme proposal, p. 26.

V. Conclusion and recommendations

85. **Water contamination has a significant impact on the realization of human rights, including the human right to water, but also the rights to health, food and a healthy environment, among many others. Human rights principles and standards are relevant beyond the context of water and sanitation service delivery and need to be integrated into discussions on water and wastewater management at all levels.**

86. **The technical solutions for improving wastewater management, curbing pollution and improving water quality exist — the greater challenge is a lack of political will to make wastewater management and pollution control a priority. However, while the challenges are manifold, the benefits of improving wastewater management are even bigger.**

87. **In line with this, the Special Rapporteur offers the following recommendations:**

(a) **States must develop a holistic approach to curbing pollution and improving water quality that addresses the different sources of contamination, including sewage, sludge and septage, that covers all sectors, including households, agriculture and industry, and that combines the dimensions of prevention, management and reuse;**

(b) **States must prioritize access to sanitation for everyone, but efforts need to go beyond achieving access aimed at improving wastewater management. States must meet their obligation to protect individuals from abuses to their human rights through contamination by others;**

(c) **States must prioritize addressing the most urgent and serious forms of contamination that vary among and within countries. They must reverse patterns of exclusion and address the situation of the most disadvantaged, who often experience the worst impact of water contamination;**

(d) **States must urgently address the aggravated challenges of contamination and lack of access to services in informal settlements. The lack of formal land tenure must not exclude people from enjoying their human rights;**

(e) **States should develop contextualized approaches that promote context-specific appropriate policies, facilities and financing mechanisms. The human rights framework does not promote a sewerage plus sewage treatment model under all circumstances. States have an obligation to progressively realize human rights, inter alia, through the adoption of a wastewater ladder approach. States should devote more attention to the management of septage and faecal sludge, which often poses the biggest challenges and threats but also provides the greatest opportunities and immediate public health gains;**

(f) **States should put in place stronger regulations and independent regulators. They should assign clear institutional responsibilities for all aspects of wastewater management and pollution control, including faecal sludge management. They should develop capacity, including for overseeing and coordinating the sector. They must ensure participation by concerned**

communities and stakeholders in decision-making on wastewater management in order to promote sustainable solutions;

(g) States must ensure adequate funding for wastewater management and pollution control. They must make efficient use of resources to avoid failed investments and unsustainable solutions, and they must carefully target resources to reach the most disadvantaged. They must ensure that wastewater charges are affordable to the population, including the most disadvantaged, and at the same time must raise appropriate charges from polluters and implement and enforce the "polluter pays" principle;

(h) States and non-State actors should carry out and publish impact assessments in line with human rights standards and principles. They should avoid referring to the confidentiality of information as an argument to keep impact assessments inaccessible. States must put in place effective, timely and accessible accountability mechanisms and ensure access to justice. States and other actors should improve data on wastewater and pollution, inter alia, also covering contamination through sludge and septage;

(i) Donors, international organizations and other non-State actors, including the private sector, should meet their human rights obligations and responsibilities respectively, and support States in improving wastewater management and pollution control, in particular through targeting resources to address the most urgent and serious challenges and improve the lives and livelihoods of the most excluded and disadvantaged populations;

(j) States should promote the integration of human rights into the post-2015 sustainable development agenda through, inter alia, incorporating the elimination of inequalities, drinking water safety, the collection and treatment of wastewater, especially addressing faecal sludge management, and putting particular emphasis on monitoring informal settlements.